NOVA SCOTIA

Environment and Labour
OCCUPATIONAL HEALTH AND SAFETY DIVISION

Personal Protective Equipment:

A guide to Part 3 of the

Occupational Safety General

Regulations

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A GUIDE TO PART 3 - PERSONAL PROTECTIVE EQUIPMENT - of the OCCUPATIONAL SAFETY GENERAL REGULATIONS

The information contained in this publication is a guide only and should be read with the *Occupational Safety General Regulations* for specific requirements. The Regulations are available through our web site at www.gov.ns.ca/enla/ohs/publicat.htm or copies may be requested by calling the Information Specialist at 902-424-5400 or toll-free 1-800-952-2687. For your reference and convenience the section of the Regulation has been included where possible.

The guide has been divided into two sections:

Section 1 contains general information on personal protective equipment - headwear, footwear, eye protection, etc.- that could apply to a wide range of workplaces.

Section 2 contains more specific information on personal protective equipment that will be of interest to those who work in confined spaces, work on or near live electrical installations, and recharge batteries in their workplace.

SECTION 1 - General

What is Personal Protective Equipment?

Personal protective equipment is the clothing and other work accessories that provide a barrier between the worker and a workplace hazard. It is portable equipment used by one person at a time. It includes safety glasses, gloves, hard hats, safety shoes, and fall-protection harness; but not things like seatbelts and guards on machines. Personal protective equipment is considered the last line of defense. It's always better to minimize or eliminate a hazard.

Who is responsible for buying this equipment?

Generally it is up to the employer and employees to decide who pays for personal protective equipment and whether it is cost shared. However, the Occupational Safety General Regulations do require the employer to provide or purchase several specific devices.

- Respiratory Equipment - section 13(1)
- Personal Flotation Device - section 14
- Work clothes - section 22(2)(a)
- Personal Protective equipment used with:
    - Rechargeable Storage Batteries - section 43(2)(a)(i),(ii) and (iii)
    - Energized electrical installations - section 123(1)
    - Jobs that involve confined space entry - section 130(4), section 134 and 135(1)(a)

Even if the employee purchases the equipment, the employer must still ensure the equipment is the correct type and is in safe working condition.

Where do I find the requirements for personal protective equipment in regulations?

The requirements for personal protective equipment are found in Part 3 of the Occupational Safety General Regulations.

Part 3 deals with:

- use of personal protective equipment - section 9;
- hazards to eyes, face or neck - section 10;
- hazards to head - section 11;
- hazards to foot/skin - section 12;
- respiratory/breathing hazards - section 13; and
- drowning hazards - section 14.

Sections dealing with specific work hazards that require more specialized equipment are also noted throughout the Regulations and are discussed in Section 2 of this guide.

Not all personal protective equipment is covered by the Regulations. It is the responsibility of the employer to ensure equipment, appropriate to the hazard, is used. For example, hearing protection is not specifically mentioned in the regulations, yet the employer must ensure the use of appropriate protection when noise cannot be reduced.

How do I know when personal protective equipment is to be used? (Section 9)

Use of personal protective equipment is based on:

- the nature of the job/task
- the location and conditions of the workplace, and
- any hazards that may affect the health and safety of people in the workplace.

Personal protective equipment is the last line of defense. It is to be used when the hazard cannot be eliminated through engineering or substitution

Employers should work with the Joint Occupational Health and Safety Committee or Health and Safety Representative, to complete a hazard assessment to see if a particular job requires personal protective equipment. For example, a hard hat would not be required if no possibility of a head injury exists. Working up on a roof may not need a hard hat, unless material was being raised unto the roof and created a head injury hazard, or when employees come down into the construction site where something could fall on their head. A carpenter building a frame would have to wear a hard hat, whereas an interior painter may not.

For further information on Committees see our booklet "A Practical Guide for Single Employer Workplaces."

Is having the equipment enough? (Section 9)

No. Before doing work requiring the use of personal protective equipment, employees must be trained to know:

- when use of the equipment is necessary,
- what type is necessary (particularly if more than one option exists- respiratory equipment for example),
- how to wear it,
- its limitations, and
- the proper care and maintenance of the equipment.

All personal protective equipment must be tested or visually inspected before each use to ensure it is not defective. Defective equipment is not to be used, and must be repaired or replaced.

Finally, the employer must ensure the use of appropriate personal protective equipment and it is the employees' duty to wear the equipment.

Hazards to eyes, face and neck (Section 10)

If a particular job exposes the worker to a hazard that could irritate or injure the eyes, face or front of the neck, the appropriate protective equipment must be worn and follow CSA standard CAN/CSA Z94.3-99 "*Industrial Eye and Face Protectors.*"

How will I know if the equipment is CSA approved?

A piece of equipment that meets the CSA standard will have the mark of a nationally recognized testing agency permanently placed on the assembled product. Also, the manufacturer or supplier will have their mark permanently placed on the equipment.

I use a chain saw. Does my face screen comply with the regulation?

Yes. A face screen is commonly used with chain saws and complies with the requirements in section 10 if it is adequate to the hazard.

Hazards to Head (Section 11)

Head injuries are caused by falling or flying objects, or hitting the head against an object. If these hazards exist then a hard hat must be worn.

What should hard hats do?

Hard hats should resist penetration and absorb shock.

What hard hats are acceptable?

Hard hats need to comply with: CAN/CSA Z94.1-92 (R1998) "*Industrial Protective Headwear*," 1992 or 1977 editions.

The standards have three classes of hard hat:

- Class C - protection against impact and penetration only
- Class E - protection against impact, penetration and electrical contact (up to 20,000 volts)
- Class G - protection against impact, penetration and electrical contact (up to 2,200 volts)

Note: the standard does not say when the various classes are to be used. This is the responsibility of the employer to ensure adequate protection for the hazard present. So if electrical contact up to 20,000 volts is possible then a Class E would be required and Class G would not be acceptable.

What do I look for to make sure the headwear is acceptable?

The headwear must be marked with:

- the manufacturer's identity, model number, class of protection, year and month of manufacture,
- size or size range, and
- a warning statement regarding replacing the headwear after
    - a severe impact,
    - no painting,
    - modifications, or
    - decals unless they are approved.

For forestry work the hard hat needs to be of a highly visible colour - "Blaze Orange" is recommended.

Can I modify my hard hat?

No modifications are allowed to the hard hat unless the manufacturer allows it and the manufacturer's instructions are followed. Painting or decals are not allowed unless approved by the manufacturer.

Do I need a new hard hat?

The regulations do not explicitly require a "new" hat. A well maintained older hat that complies with the standards is acceptable. Where extreme care should be taken is if the hat has been subjected to a hard blow - it may be weakened and still not show any cracks. Also hygienic factors should be considered if sharing a hard hat.

What is the life expectancy of a hard hat?

There is no specific life span for a hard hat. Check the manufacturer's information for an expected life span. Always replace a hard hat after a significant impact or when cracked.

Can I wear my hard hat backwards?

You may wear your hard hat backwards only if the hard hat is certified for being able to be worn backwards. Follow the manufacturer's instructions.

I have a hard hat that is ANSI approved, is this ok?

An American National Standards Institute hard hat, available at some locations, is not equivalent to the CSA standard and should not be used, or sold. A hard hat that is both CSA and ANSI approved is acceptable. If it is solely ANSI approved it is not acceptable.

Hazard to Foot or Skin (Section 12)

Work that exposes a person to a foot or skin injury hazard requires the use of appropriate protection.

There is so much footwear available; what am I looking for?

Footwear must comply with CSA Standard CAN/CSA Z195-M92 "*Protective Footwear*". The standard has three grades of footwear, all have toe protection and may provide additional types of protection - sole, electrical shock, etc.

The grades are identified by a coloured triangle and the standard offers some suggested uses for the various grades

- Grade 3 - red triangle; suggested use, hospital workers
- Grade 2 - yellow triangle; suggested use, retail workers
- Grade 1 - green triangle; suggested use, all other work environments

If the footwear also has electrical shock resistance as part of its safety features, it will have a white rectangle on it.

What do I look for to make sure the footwear is acceptable?

Footwear meeting CSA standards must be permanently marked with:

- the manufacturer's name,
- grade of toe protection and any additional protection, and
- month and year of manufacture.

Footwear that meets the standard but has no sole protection may not have any external (coloured triangles) identification.

Does it matter if I wear boots or shoes?

The regulation does not specify the design of the shoe. The potential hazard an employee will face should guide the selection. For example, if there is a hazard of having the foot and ankle caught between two objects then a high boot style is appropriate.

Are "toe caps" acceptable?

Toe caps are a separate form of protection worn over regular footwear. Toe protection must be an integral part of the footwear; toe caps do not meet the standard and do not comply with the regulations.

What about hazards to skin?

Hazards to skin may be addressed in a number of ways. The guiding principle being, is the protection adequate to the hazard. Canvas gloves may be appropriate for handling material that could cause scrapes or abrasions, but may not be sufficient for puncture hazards.

If handling caustic or corrosive materials, gloves need to be made of appropriate materials. An apron may also be required for further protection.

Leggings are appropriate leg protection against welding sparks. Workers using chain saws will need leg protection resistant to chain saw cuts.

Some professions have developed an industry standard for the use of personal protective equipment when performing certain tasks. These should be followed where they provide equal or higher safety than the regulations. For example "The Forest Professional" publication provides excellent information on required personal protective equipment when performing various tasks in the wood cutting industry. It is available on-line at www.gov.ns.ca/enla/ohs/publicat.htm or by calling 902-424-5400 or toll free 1-800-952-2687.

Respiratory Hazard (Section 13)

The employer must provide and pay for protective equipment adequate to a respiratory hazard that could cause injury or illness to an employee.

What if the hazard requires compressed breathing air in a self-contained unit?

The regulations requires air used in self-contained breathing apparatus to meet the following purity standards:

Oxygen	19.5 to 22.5%
Carbon monoxide	5 ppm
Carbon dioxide	500 ppm
Methane	25 ppm
Non methane hydrocarbons	As set out in TLV book
Nitrogen dioxide	0.3 ppm
Nitrous oxide	2.5 ppm
Halogenated hydrocarbons	5 ppm
Oil, particulates, condensates	1 mg/m^3
Water	Dew point 5°C below lowest line temperature. Maximum dew point of -53°C for pressures of 12.4 MPa (1800 psi) and above
Odour	None detectable

Compressed air used in air line respirators or sandblasting hoods is not addressed by the regulations. However, good practice would be to maintain air above the purity standards.

What about fitting the equipment?

The regulations require a "field check" of the respirator before each use. The procedure is described in the manufacturer's instructions. The regulation **does not** require quantitative and qualitative fit tests in all cases, however, they are highly recommended. They are required for firefighters (section 196).

Are the other Standards?

The regulation also relies on CSA Standard CSA Z94.4-93 (R1997) "*Selection, Use and Care of Respirators*". This covers the training of equipment users, and the use, maintenance and testing of the equipment.

Drowning Hazard (Section 14)

If an employee is exposed to a drowning hazard the employer must provide a personal flotation device that complies with CGSB Standard CAN/CGSB 65.11 - M88 "*Personal Flotation Devices*".

What type of PFD does the Standard allow?

The standard covers PFDs for persons over 41 kg (90 lbs) and are designed to be worn continuously. There are two types:

- inherently buoyant (floats on its own); and
- some inherent buoyancy supplemented by an inflatable device.

How do I know if a PFD is approved?

Approved PFDs will have the following label/information on it:

Designed for chest size_____ to _____
Manufactured by _____
in (month and year of manufacture)
Lot number _____ to conform to standard CAN/CGSB 65.11-M88, Type_____
Buoyancy, 69 N minimum (15 ½ pounds force)
Approved by the Department of Transport, Canada
Approval No. _____
A diagram or sketch showing how the PFD is to be used
THIS PFD IS DESIGNED TO BE WORN. WEAR IT!

CAUTION:
This device may lose buoyancy over a period of time and become no longer serviceable. The water performance should be checked regularly during each season to determine that it provides adequate buoyancy for your needs. Orange, red, and yellow PFDs are recommended for higher visibility.

What about persons under 40 kg?

Employers must ensure the employee has an appropriate flotation device or an alternative means of protection that provides an equivalent level of safety to prevent the person from drowning.

Work Clothes (Section 22(2)(a))

Am I required to buy work clothes for my employees?

The employer must purchase work clothes for employees when the clothes are likely to be contaminated. This is more likely to occur where chemicals or biological agents are being handled.

In addition to providing the work clothes, the employer will also need to clean the clothes as necessary.

SEGMENT 2 - Special Instances

Rechargeable Storage Batteries (Section 43 (2)(a))

What personal protective equipment do I need?

Recharging batteries with electrolyte requires the employee to wear:

- goggles and a face shield,
- acid resistant gloves, and
- an acid resistant apron.

What type of goggles or face shield will I need?

The goggles or face shield must meet CAN/CSA Z94.3-99 "*Industrial Eye and Face Protectors*." If there is a danger of chemicals splashing, they will also need to be chemical splash resistant and not just impact resistant.

Who pays for this equipment?

The employer is required to pay for this personal protective equipment and ensure that the employee uses it.

Energized electrical installations - Section 123(1)

What are energized electrical installations?

Energized electrical installations are power lines or equipment which are live - still carrying electricity.

What type of personal protective equipment is required ?

There are several pieces of equipment required. All the pieces need to conform to the standard specified by the regulation. See the table on the next page.

Personal Protective Equipment for Energized Electrical Installations

	class and label colour	class range	label information
ASTM D120-95 "*Standard Specification for Rubber Insulating Gloves*" This standard applies to glove or mitts	Class 0 - red Class 1 - white Class 2 - yellow Class 3 - green Class 4 - orange	Class 0 - up to 1,000 V Class 1 - up to 7,500 V Class 2 - up to 17,000 V Class 3 - up to 26,500 V Class 4 - up to 36,000 V	name of manufacturer type - ozone resistant (II) or not (I) size voltage class - 0 to 4 proof date
ASTM D1051-95 "*Standard Specification for Rubber Insulating Sleeves*" The sleeve does not need to be made of rubber as long as the material used has similar electrical resistance as rubber	Same as gloves and mitts	Same as gloves and mitts	name of manufacturer type - ozone resistant (II) or not (I) size voltage class - 0 to 4 proof date right or left
ASTM D1048-99 "*Standard Specification for Rubber Insulating Blankets*" The blankets do not need to be made of rubber as long as the material used has similar electrical resistance as rubber	Same as gloves and mitts	Same as gloves and mitts	name of manufacturer type - ozone resistant (II) or not (I) voltage class - 0 to 4 st: proof date
ASTM D1050-90 "*Standard Specification for Rubber Insulating Line Hose*" The hoses do not need to be made of rubber as long as the material used has similar electrical resistance as rubber	Same as gloves and mitts	Same as gloves and mitts	name of manufacturer type - ozone resistant (II) or not (I) voltage class - 0 to 4 style
ASTM D1049-98 "*Standard Specification for Rubber Insulating Covers*" The covers do not need to be made of rubber as long as the material used has similar electrical resistance as rubber	Same as gloves and mitts; if a label is used must be same colour as above	Same as gloves and mitts	name of manufacturer type - ozone resistant (II) or not (I) voltage class - 0 to 4

ASTM D178-93 (1998) *"Standard Specification for Rubber Insulating Matting"*	Same as gloves and mitts	Same as gloves and mitts	name of manufacturer type - indicates resistance to ozone, flame or oil voltage class - 0 to 4
ASTM F696-97 (1997) *"Standard Specification for Leather Protectors for Rubber Insulating Gloves and Mittens"*	None	None	hand size name of manufacturer overall length note: markings may be on glove itself, on a tag, or on printed material enclosed with each pair of gloves/mitts
ASTM F711-97 (1997) *"Standard Specification for Fiberglass Reinforced Plastic (FRP) Rod and Tube used in Live Line Tools*	None	None	name of manufacturer month and year of manufacture the rod/tube meets the requirements of the standard

Who is responsible for purchasing the equipment?

The employer must purchase the equipment. The equipment does not need to be new, but it must fit the worker and meet the standards.

There is no mention of training in this section?

Section 9 of the regulations requires that before doing work requiring the use of personal protective equipment employees must know:

- when the use of equipment is necessary,
- what type is necessary, particularly where there is more than one option
- how to wear it,
- its limitations, and
- the proper care, and maintenance of the equipment.

Confined Space Entry - Section 130(4), Section 134 and 135(1)(a)

Who is responsible for purchasing the equipment?

The employer must purchase the personal protective equipment as well as any emergency equipment that would be appropriate to the hazards of any particular confined space. The equipment is not only for the employee that is entering the confined space, but also for anyone who may be required to undertake rescue operations.

What type of equipment is required?

The regulations require anyone entering and occupying a confined space to be wearing, where reasonably practicable, a full body harness.

If a full body harness were to interfere significantly with entering or exiting the confined space or actually create a greater hazard to the employee, it would not be required. In these cases, the employer and the joint occupational health and safety committee or health and safety representative should consider the task and hazard and develop a set of safe work procedures for carrying out this task.

Is there a Standard for the full body harness?

The full body harness has to comply with the requirements for Group E harnesses in CSA Standard CAN/CSA 259.10 M90 "*Full Body Harnesses*". The Group E harnesses are specific to confined space entry and exit.

How do I know if the harness meets the standard?

The harness will have a label that has the following information: identity of manufacturer or vendor, size, date of manufacture, model and confirmation it is a Class E harness.

What else do I need to provide?

Depending on the activity in the confined space and the hazard it presents, other personal protective equipment such as glasses, headwear, footwear, and clothing will need to be considered.

The employer must also provide the appropriate respiratory equipment if a concentration or mixture of chemicals exists in the confined space that is hazardous to the person entering.

What type of respiratory equipment is required?

The regulation does not specify a standard. The equipment needs to be appropriate to the hazard and should be approved by a recognized body. The National Institute for Occupational Safety and Health (NIOSH) for example. A NIOSH-approved respirator will have an approval number stamped on either the respirator or the box.

If a person is entering a confined space where the concentration of oxygen is less than 19.5%, the regulation requires that person to wear positive pressure respiratory equipment.